BETENBENDER

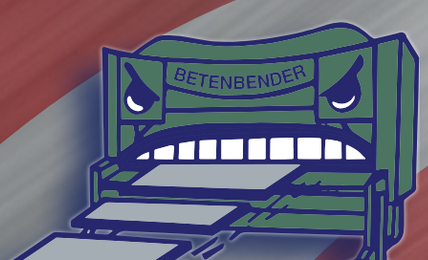
Manufacturing, Inc.

AMERICAN MADE WITH PRIDE & DURABILITY

Press Brakes

The Betenbender Family of American Made Hydraulic Shears and Press Breaks

Since 1972



Located in Coggon, Iowa

Also on the Web at www.betenbender.com

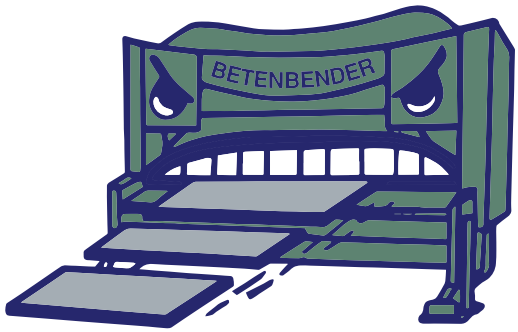
HMI
Hydraulic Machines of Iowa

BETENBENDER MANUFACTURING, INC.

Family Tradition and American Pride

WELCOME

Shears
Press Brakes
C Frame Presses



If you're not already a customer of Betenbender Manufacturing, Inc. we welcome you as a future owner of an American made Betenbender Hydraulic Shear, Hydraulic Press Brake or C Frame Press. If you've purchased one before, we welcome you back. We are pleased that our customers come back again and again, as they grow and need more equipment.

Our full range of Hydraulic machines are engineered for simplicity and ease of operation. We have a national and international sales and service team ready to serve you.

Since 1972 we have continually updated our designs and equipment to meet our customers' needs. We always appreciate and welcome feedback from our customers.

-Max Betenbender, President

Betenbender Manufacturing, Inc. 5806 Quality Ridge Road / PO Box 140 / Coggon, Iowa 52218
Office 319-435-2378 / **Fax** 319-435-2262 / **Web** www.betenbender.com / **E-mail** sales@betenbender.com

Family Tradition and American Pride

ABOUT US

1971

2014

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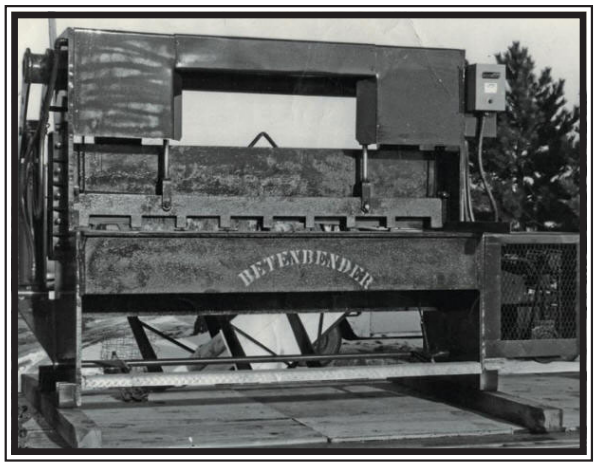
Family Tradition and American Pride

ABOUT US

Our History

The Betenbender Family of American Hydraulic Shears and Hydraulic Press Brakes is made by Betenbender Manufacturing,Inc. in Coggon, Iowa, U.S.A. Now in our fifth decade in business, our Midwestern Company continues to produce what we believe is America's best built Shears and Press Brakes.

Glen (Pete) Betenbender began as a blacksmith in Coggon during the 1930s. During WWII, he ran a small fabrication and repair shop. In 1948 he and his wife, Blanche, moved their growing business into their current location as a repair and manufacturing facility. Their son, Max, joined the company in 1967 after serving in the United States Army. In 1972, Pete and Max built their first shear for their own use, but demand from other local businesses for their shear prompted the Betenbenders to begin producing shears for national and international resale. In 1984 Betenbender Manufacturing, Inc. got its first contract to produce shears for a major company.



This Betenbender Shear, one of our first machines- built in 1972, is still in operation!

In 2012, Betenbender Manufacturing, Inc. purchased Hydraulic Machines, Inc. from long time friends, Alan and Whitney Hanner. Under the HMI (Hydraulic Machines of Iowa) name we offer a line of C frame presses ranging from 35 ton to 200 ton.

Betenbender Manufacturing, Inc. continues to be a family owned business. Today Max is President and his wife, Donna, is the corporations Secretary-Treasurer. The Vice President, Kyle Rawson, handles the operation of the manufacturing facility which includes customer service and fabrication.

Today there are over 3,900 Betenbender machines in use with very few on the used market.

High Profile Shear - 2004

We have always said...

"If it says Betenbender on the nameplate, you've got a machine that will do the job."

BETENBENDER MANUFACTURING, INC.

American Made Hydraulic

PRESS BRAKES

If It Says Betenbender On The Nameplate, You've Got A Hydraulic Press Brake That Will Do The Job

Call 319-435-2378 to get a quote for your Betenbender Hydraulic Press Brake… Be ready with the answers to these questions…

1. Do you have a press brake tooling catalog?
2. What is the longest and heaviest material you will be bending? What type of material with you be forming? (mild, stainless, etc.)
3. What is the distance needed between uprights?
4. Do you require the following recommended options:
   a. Front support arms
   b. Front operated manual backgauge
   c. One shot lubrication (for shops without regular maintenance)
   d. Keylock switch
   e. Work light
5. What voltage do you require?
6. Do you have a single concrete block at least 4" thick for the machine base?
7. Is the door big enough to get the machine into the shop?
8. What upper punches do you require? (Standard, gooseneck, acute)
9. Do you require a separate female die for each thickness of material?
10. Would a 4-way die and die holder with rollover bars be beneficial?
11. Do you need a die holder to hold dies or 4-way? (Note: machine is not furnished with a die holder-riser)
12. Is an adjustable tonnage control for fragile dies needed?

It's versatile, accurate, rugged, easy to operate and easy to maintain. That's the way Betenbender makes its Press Brakes.

Whether you bend plastic or steel, there's a Betenbender Hydraulic Press Brake to match your needs, ranging from the 20-ton model to the 1000-ton model. No matter the size, each machine features convenient operation for maximum output and ease of maintenance for maximum productivity.

Betenbender goes the extra mile to build a Press Brake that works hard, works accurately, and maintains its qualirty for years to come.

When your name goes on the finished product, so does your reputation. We feel the same way. Compare features. Compare results. You can count on first-class American technology, rugged durability, versatility and economy when your machine made by Betenbender Manufacturing, Inc.

50-70T

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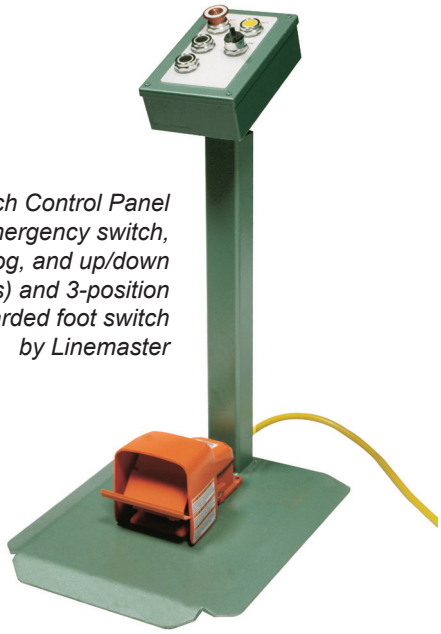
American Made Hydraulic

PRESS BRAKES

Proven Performance

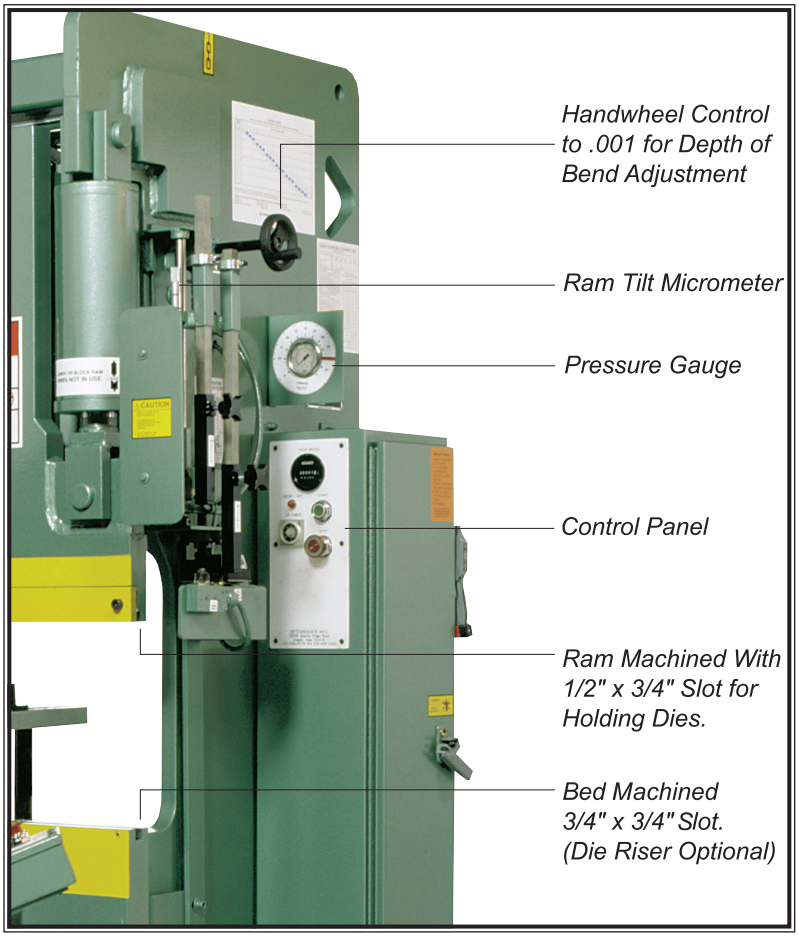
Betenbender Press Brakes are engineered to handle your metal forming requirements and have proven their performance in thousands of field installations.



Multi-Switch Control Panel (with emergency switch, run-jog, and up/down buttons) and 3-position fully guarded foot switch by Linemaster

STANDARD FEATURES

- 2 Speed Ram (20T-70T)
- 3 Speed Ram (95T-1000T)
- All Hydraulic Fluids Included
- All Steel Construction
- American Made Hoses and Fittings
- American Made Valves and Motors
- Bottom Time Delay
- Clamp Type Backgauge- Manual Adjustable X, Y, & Z - 24”
- Cylinders are Steel, Double Acting Piston Type with Hardened, Ground and Chromed Rods
- Depth Stop with Digital Readout
- Disconnect Switch
- Front & Back of Bed Machined Smooth for Mounting of Gauges
- Hardened Pins with Spherical Bearings for Alignment
- Hour Meter
- Hydraulic Pressure: 2500 psi
- NEMA Electrics
- Three Position Foot Switch by Linemaster



American Made Hydraulic
PRESS BRAKES

Like The Shear, You Can Take Betenbender's High Quality Press Brake & Add Options To "Build It Your Way!"

OPTIONS

Every shop is different. Your shop may need a Hydraulic Press Brake unique to your business.

We will work with you to build a unit to fit your job and your budget.

Building a Betenbender Press Brake with the options you need is the best way to get the most from your equipment in performance and results. Betenbender Manufacturing, Inc. offers you a quality machine in design, construction and durability.

Operator Station Palm Control with 3-position Fully Guarded Foot Switch by Linemaster

Tooling for Punching Applications

The Optional Front Reading Manual Backgauge Features an Attached Meter, Clearly Indicating Where the Gauge Bar is Located in Relation to the Die.

24" Front Support Arm "Slide" Type with Disappearing Stop

24" Front Support Arm "Slide" Type

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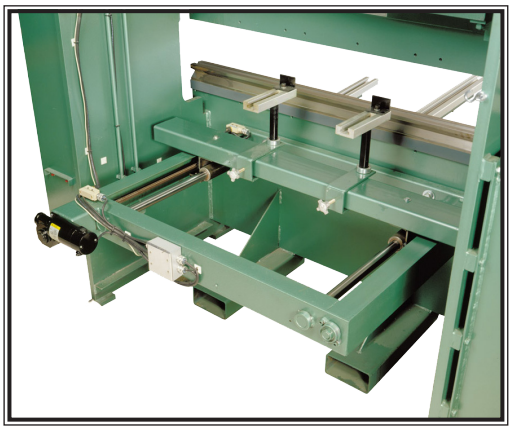
American Made Hydraulic PRESS BRAKES

OPTIONS

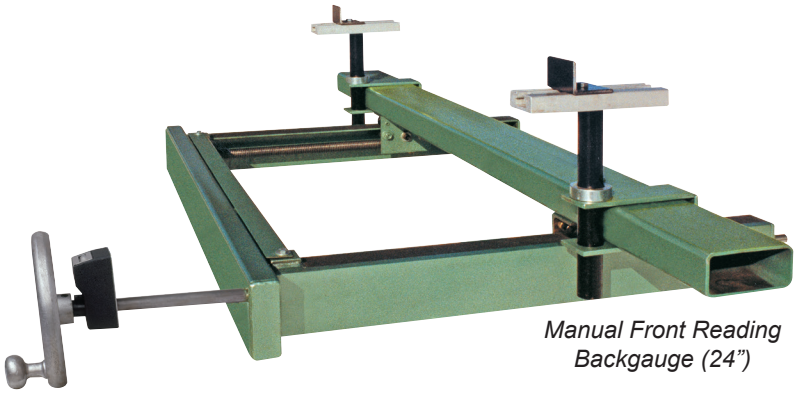
- 24” Support Arms “Slide” Type
- Keylock Switch
- Light Curtain
- Manual Front Reading Backgauge (24”) with Mechanical Readout
- One Shot Lubrication
- Operator Station Palm Control
- Variable Tonnage Control
- Work Light
- 208v Single Phase
- Additional Foot Pedal with Keylock
- Air Lift (Recommended for 4/Way Dies)
- Angle Brackets (Plates) for Bottom
- Angle Brackets (Plates) for Top
- Automatic Lubrication
- Bed Machining Angle Brackets
- Bolt/Shim Kit for Leveling
- CNC Backgauge
- CNC Ram Stop
- Die Holder/Riser
- Die Rollover Bars (Recommended for 4/Way Dies)
- Disappearing Stops
- Dove Tails
- Dual Calibration
- Extended Support Arms (each)
- Extra Length on Backgauge
- Increase Stroke Length
- Increase Throat Gap or Increase Open Height
- Micrometer Precision Gauge Unit (2 Required)
- Oil Cooler
- Palm Buttons/Foot Control System (Hand buttons to preset height, stop and hold, foot to continue to shut height)
- Power Front Reading Backgauge with 5 Station NC “GO-TO” Positioner on Pendant
- Power Ram Adjustment with 5 Station NC “GO-TO” Positioner on Pendant
- Ram Machining
- Special Application Tooling
- Special Paint Colors
- T-Slots

ASK ABOUT OPTIONS NOT LISTED
RECOMMENDED OPTIONS

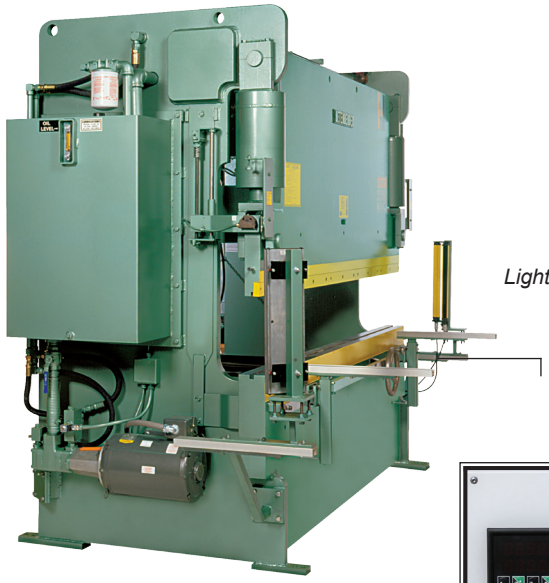
Power Front Reading Backgauge and Power Ram Adjustment w/ 5 Station NC “GO-TO” Positioner on Pendant



Power Front Reading Backgauge



Manual Front Reading Backgauge (24”)



Light Curtain

99 Station Auto Sequence

American Made Hydraulic

PRESS BRAKES

Our Standard & Optional Features Make Delivering Quality Easier

Simple & Flexible Controls: Our machines use either a convenient multi-switch control panel or a 3-position fully guarded foot switch.

Accuracy: Every Betenbender machine is thoroughly inspected and tested. Parallelism is maintained between bed and ram, or at a preset angle, by using precise automatic leveling controls. Parallelism is maintained at ±0.002 inch in low speed.

The ram bottom reversal point is controlled by precise limit switches referenced off the bed. This isolates housing deflections which can interfere with accuracy.

The side situated handwheel sets the bottom limit of the ram stroke. Micrometer adjustment on the control end allows for tilting or paralleling of the ram. A bed referenced control monitors the actual distance between ram and bed, assuring repeatability independent of die wear or end plate deflection.

Versatility: Betenbender's Press Brakes have long, full tonnage stroke; adjustable length and selectable speed combinations; and adjustable height for short stroke. Two-speed is standard; three-speed with infinitely adjustable low speed is optional. This option prevents sudden whip up of the work during bending operations.

Maintenance: Clevis mounted cylinders eliminate cylinder binding, reducing the possibility of oil leaks. Pins and bushings do not rotate under load, resulting in much less wear than competitive products.

Easy Hydraulic System Maintenance: The manifold assembly saves space and makes it easy to replace many components. The convenient work height makes the job easier.

Convenient Settings: The readout displays in increments of 0.001 inch allows recorded settings of closed heights.

Standard Components: The control system components, micro switches, clamp-type backgauge, hydraulic fluid and filter cartridges are all standard equipment, making routine maintenance easier.

Flexibility: 2-speed ram is electrically controlled, and lets you shift to a lower speed before coming into contact with sheet metal.

Control: The ram stops at the point of reference and self-levels on every stroke. Main control cabinet enclosures are mounted on the side frame containing a magnetic, non-reversing motor, starter and 110/120v control circuit.

Safety and Reliability: The control system operates at 110/120v, using a minimum of circuitry. The system operates predominantly with American made electronics and American made motors.

Durability: The end frames, ram and bed are constructed of steel.

Electrical Equipment: Our machines meet the requirements of NFPA 79. They include drip proof, continuous duty 45ºC ambient hydraulic pump motor wired for 208-230/460v 3 phase, 60 hertz, and other options are available.Our machines also meets the ANSI B11.3 standards.

Ram Level: Two hydraulic systems, one for each cylinder, keeps the ram parallel. The ram self-levels at the bottom of each stroke even if the hydraulic system is out of adjustment.

95-550T

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BENDING PROPERTIES OF DIFFERENT STEELS

TONNAGE CHARTS

Pressure In Tons Per Linear Foot Required to Make 90 Degree Air Bend in Mild Steel

Tons Per Linear Foot — **Tensile 58 ksi** — **Yield 32 ksi**

THICKNESS OF METAL		WIDTH OF FEMALE DIE OPENING																
Gauge	Inches	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1⅛	1¼	1½	2	2½	3	3½	4	5	6
20	.036	2.9	2.2	1.7	1.2	1.0													
18	.048		4.0	2.9	2.2	1.6	1.3												
16	.060			5.6	3.6	2.7	2.2	1.7											
14	.075				6.0	4.5	3.4	3.0	2.5	2.1									
13	.090					6.8	5.4	4.3	3.7	3.3	2.9								
12	.105					10.1	7.4	6.3	5.4	4.4	4.0	3.2							
11	.120						10.5	8.8	7.2	6.2	5.4	4.3	3.2						
10	.135							11.3	9.6	8.4	7.0	5.6	4.1						
9	.150								13.1	11.9	9.0	6.7	5.2	3.5					
7	.188									16.4	14.0	11.2	7.6	5.8	4.5				
1/4	.250			*NOTE*							28.8	22.0	15.3	11.5	9.1	7.5	6.2		
5/16	.312			We recommend using 85° or 88° dies								38.0	26.0	19.2	16.0	12.5	10.6	7.6	
3/8	.375			And or punches for air bending									41.0	29.9	24.0	19.4	16.0	12.3	9.3
7/16	.437													45.2	35.0	28.0	24.0	17.0	14.6
1/2	.500														47.9	39.0	33.1	24.0	19.0

Add 25% for A36 steel.
This can vary with tensile and yield

Pressures shaded are for dies with female openings approximately 8x metal thickness, with radius on male die equal to metal thickness, and considered ideal for right angle bending

Pressure Required For Air Bending High-Tensile Low-Yield Steel

Tons Per Linear Foot — *Tensile 80-90 ksi* — *Yield 30-40 ksi*

THICKNESS INCHES		WIDTH OF V-DIE OPENING (INCHES)										
		2	2½	3	3½	4	5	6	7	8	10	12
1/4	0.250	18.5	13.7	10.8	8.9	7.3						
5/16	0.313	32.4	23.9	18.4	15.2	12.6	9.2					
3/8	0.375	50.8	37	29	23.5	19.5	14.8	11.4				
7/16	0.438		55	42.5	30.5	29.5	21	17.5	13.5			
1/2	0.500			59	47.5	40	29.5	23.5	19	15.5		
5/8	0.625				84	70	51.5	40	33	28	20	
3/4	0.750					112	83	64	52	43	33	25
7/8	0.875						125	97	77	64	48	38
1	1.000							136	110	92	68	53

V-opening is 8x material thickness.

Punch radius equal to material thickness

Pressure Required For Air Bending High-Tensile Low-Yield Steel

Tons Per Linear Foot — *Tensile 60-75 ksi* — *Yield 45-55 ksi*

THICKNESS INCHES		WIDTH OF V-DIE OPENING (INCHES)										
		2	2½	3	3½	4	5	6	7	8	10	12
1/4	0.250	26	19.5	15.5	12.5	10.5						
5/16	0.313	46	33.5	26	21.5	18	13					
3/8	0.375			41	33.5	28	21	16				
7/16	0.438				48.5	41.5	29.5	23	19			
1/2	0.500					57	42	33	27	22		
5/8	0.625						74	57	47	40	29	
3/4	0.750							91	74	62	46	36
7/8	0.875								110	90	68	54
1	1.000								155	129	96	75

V-opening is 10x material thickness.

Punch radius is 1 1/2x material thickness.

Plates Typical Properties

Properties shown for annealed and as rolled alloy plate are based on singe test results. They will vary considerably dependent on thickness.

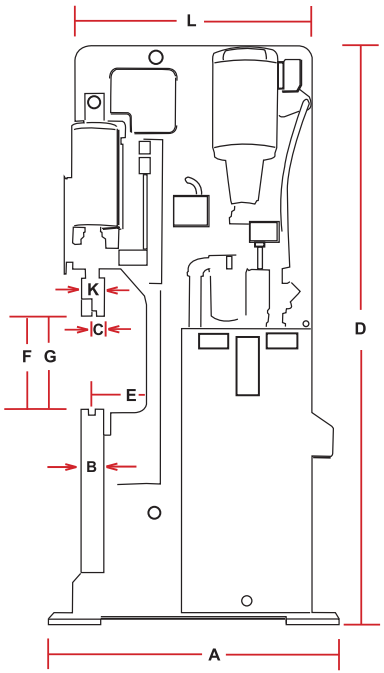
	Condition of Steel	Tensile Strength KSI	Yield Strength KSI	% Elong. In 2"	%Elong. In 8"	Approx. Brinell Hardness
GENERAL PURPOSE						
1015	As Rolled	50	29	---	---	133
1020 Mild Steel	As Rolled	58	32	---	---	143
1025	As Rolled	70	34	---	---	156
ASTM A36, ASME SA36	As Rolled	58-80	36 min.	23	20	137

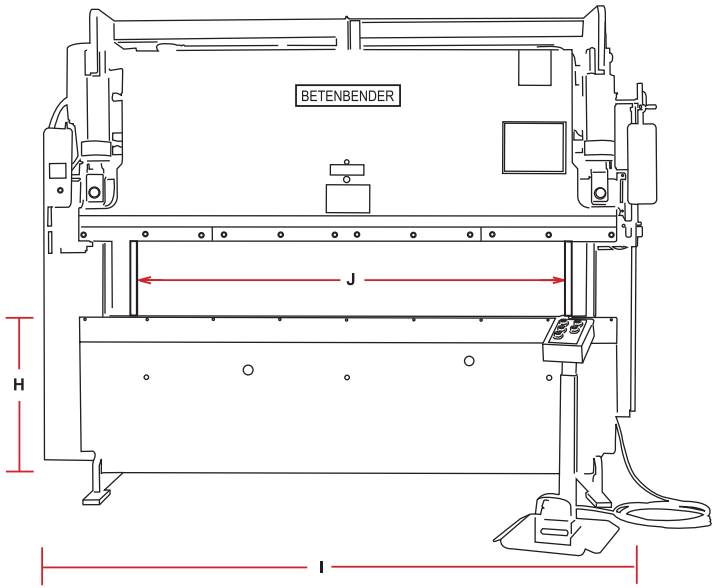
Bending Pressures Required For Other Metals As Compared To 60,000 P.S.I. Tensile Mild Steel On Chart:

Soft Brass.....50% of pressure listed
Soft Aluminum.....50% of pressure listed
Aluminum Alloys(Heat Treated).....,...same as steel
Stainless Steel.....50% more than steel

American Made Hydraulic
PRESS BRAKES

PRESS BRAKES SPECIFICATIONS





HP	AMPS 208/230	460
10	28	14
20	54	27
30	80	40
40	104	52

Please Note:
ALL measurements and weights may vary from the figures given in this Specification Chart.

All dimensions are in inches unless otherwise noted.
(To convert to centimeters multiply by 2.54)

Engineering data and dimensions are subject to change without notice due to continuing product development.

Foundation plans are available upon request.

Die Blocks are not furnished.

To convert Horsepower to KW, multiply by 0.746

**ESTIMATED WEIGHTS. The weight of your machine may vary from the estimated weight listed here. Weights may vary according to options included.

For specs on larger machines please call or email us and we will provide those for you.

A	Overall Width	E	Throat Depth		Height of Bed	K	Width of Upper Ram	N	Rapid Approach (IPM)
B	Width of Bed	F	Open Height		Overall Length	L	Width of Upper End Plates	O	Return to Open (IPM)
C	Width of Upper Machined Ram	G	Closed Height		Distance Between Housing	M	Press (IPM)	P	2-Speed Electric Shift
D	Overall Height								

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	HP	Wt.**
4'-17	54	2	1 ¾	72	7	14	6-10	29-33	54	30 ½	2	50	0-66	66	92	Std.	5	2,500
4'-50	45	2	1 ¾	96	8	14	6	28	63	30 ½	2	36	0-66	66	92	Std.	10	5,800
6'-50	45	2	1 ¾	96	8	14	6	28	87	54 ½	2	36	0-66	66	92	Std.	10	6,800
8'-50	45	2	1 ¾	96	8	14	6	28	111	78 ½	2	36	0-66	66	92	Std.	10	8,000
10'-50	45	4	1 ¾	96	8	14	6	28	135	102 ½	2	36	0-66	66	92	Std.	10	11,000
12'-50	45	4	1 ¾	96	8	14	6	28	159	126 ½	2	36	0-66	66	92	Std.	10	12,500
4'-70	45	4	1 ¾	96	8	14	6	28	63	30 ½	2	36	0-44	44	63	Std.	10	7,500
6'-70	45	4	1 ¾	96	8	14	6	28	87	54 ½	2	36	0-44	44	63	Std.	10	8,000
8'-70	45	4	1 ¾	96	8	14	6	28	111	78 ½	2	36	0-44	44	63	Std.	10	11,000
10'-70	45	4	1 ¾	96	8	14	6	28	135	102 ½	2	36	0-44	44	63	Std.	10	13,000
12'-70	45	4	1 ¾	96	8	14	6	28	159	126 ½	2	36	0-44	44	63	Std.	10	14,500
14'-70	45	4	1 ¾	96	8	14	6	28	183	150 ½	2	36	0-44	44	63	Std.	10	15,500
6'-95	56 ½	4	2 ¼	103	8	14	6	37	100	54 ½	2 ½	50	50	114	168	Std.	20	13,000
8'-95	56 ½	4	2 ¼	103	8	14	6	37	123	78 ½	2 ½	50	50	114	168	Std.	20	18,000
10'-95	56 ½	4	2 ¼	103	8	14	6	37	135	102 ½	2 ½	50	50	114	168	Std.	20	20,100
12'-95	56 ½	4	2 ¼	103	8	14	6	37	159	126 ½	2 ½	50	50	114	168	Std.	20	21,000
14'-95	56 ½	4	2 ¼	103	8	14	6	37	183	150 ½	2 ½	50	50	114	168	Std.	20	23,000
16'-95	56 ½	4	2 ¼	103	8	14	6	37	207	174 ½	2 ½	50	50	114	168	Std.	20	24,000
6'-120	56 ½	5	2 ¾	103	8	14	6	37	100	54 ½	3	50	40	87	115	Std.	20	17,000
8'-120	56 ½	5	2 ¾	103	8	14	6	37	123	78 ½	3	50	40	87	115	Std.	20	19,000
10'-120	56 ½	5	2 ¾	103	8	14	6	37	135	102 ½	3	50	40	87	115	Std.	20	22,000
12'-120	56 ½	5	2 ¾	103	8	14	6	37	159	126 ½	3	50	40	87	115	Std.	20	24,000
14'-120	56 ½	5	2 ¾	103	8	14	6	37	183	150 ½	3	50	40	87	115	Std.	20	26,000
16'-120	56 ½	5	2 ¾	103	8	14	6	37	207	174 ½	3	50	40	87	115	Std.	20	28,000
6'-160	56 ½	5	2 ¾	103	8	14	6	37	100	54 ½	3	50	31	68	86	Std.	20	17,000
8'-160	56 ½	5	2 ¾	103	8	14	6	37	123	78 ½	3	50	31	68	86	Std.	20	19,000
10'-160	56 ½	5	2 ¾	103	8	14	6	37	135	102 ½	3	50	31	68	86	Std.	20	22,000
12'-160	56 ½	5	2 ¾	103	8	14	6	37	159	126 ½	3	50	31	68	86	Std.	20	24,000
14'-160	56 ½	5	2 ¾	103	8	14	6	37	183	150 ½	3	50	31	68	86	Std.	20	26,000
6'-190	56 ½	5	2 ¾	103	8	14	6	37	100	54 ½	3	50	25	55	66	Std.	20	17,000
8'-190	56 ½	5	2 ¾	103	8	14	6	37	123	78 ½	3	50	25	55	66	Std.	20	19,000
10'-190	56 ½	5	2 ¾	103	8	14	6	37	135	102 ½	3	50	25	55	66	Std.	20	22,000
12'-190	56 ½	5	2 ¾	103	8	14	6	37	159	126 ½	3	50	25	55	66	Std.	20	25,000
14'-190	56 ½	5	2 ¾	103	8	14	6	37	183	150 ½	3	50	25	55	66	Std.	20	27,000
6'-240	56 ½	5 ½	3 ¾	111	8	16	10	37	100	54 ½	4	60	25	50	70	Std.	30	23,000
8'-240	56 ½	5 ½	3 ¾	111	8	16	10	37	123	78 ½	4	60	25	50	70	Std.	30	26,000
10'-240	56 ½	5 ½	3 ¾	111	8	16	10	37	135	102 ½	4	60	25	50	70	Std.	30	29,000
12'-240	56 ½	5 ½	3 ¾	111	8	16	10	37	159	126 ½	4	60	25	50	70	Std.	30	33,000
14'-240	56 ½	5 ½	3 ¾	111	8	16	10	37	183	150 ½	4	60	25	50	70	Std.	30	35,000
6'-300	56 ½	5 ½	3 ¾	116	8	16	10	37	100	54 ½	4	60	25	50	70	Std.	30	29,000
8'-300	56 ½	5 ½	3 ¾	116	8	16	10	37	123	78 ½	4	60	25	50	70	Std.	30	31,000
10'-300	56 ½	5 ½	3 ¾	116	8	16	10	37	135	102 ½	4	60	25	50	70	Std.	30	34,000
12'-300	56 ½	5 ½	3 ¾	116	8	16	10	37	159	126 ½	4	60	25	50	70	Std.	30	37,000
14'-300	56 ½	5 ½	3 ¾	116	8	16	10	37	183	150 ½	4	60	25	50	70	Std.	30	38,000
10'-350	56 ½	5 ½	3 ¾	119	8	16	10	37	135	102 ½	4	60	25	50	70	Std.	30	35,000
12'-350	56 ½	5 ½	3 ¾	119	8	16	10	37	159	126 ½	4	60	25	50	70	Std.	30	37,000
14'-350	56 ½	5 ½	3 ¾	119	8	16	10	37	183	150 ½	4	60	25	50	70	Std.	30	39,000

Betenbender Manufacturing, Inc. 5806 Quality Ridge Road / PO Box 140 / Coggon, Iowa 52218 / **Office** 319-435-2378 / **Fax** 319-435-2262 / **Web** www.betenbender.com / **E-mail** sales@betenbender.com

American Made Hydraulic
PRESS BRAKES

TECHNICAL SPECIFICATIONS

Frame: The frame is of open throat design with mounting holes in feet. Drilled and tapped holes in feet allow for leveling of the machine.

Bed: The machined flat surface is slotted full length to accommodate standard die holders, filter blocks, misc.

Front & Back of Bed: The bed is machined down 4” on the front and 12” on the back to allow a flat surface for mounting various brackets, supports and gauges.

Ram: The ram is constructed of solid steel slotted to accept standard dies. The clamping bar is sectional for positive clamping. The upper is machined up to 4” to allow a flat surface for mounting brackets and gauges.

Ram Tilt Adjustment: The micrometer spindle is located on the right side end frame of machine, which allows for adjustment of the desired angle required up to ±0.500 inch. The micrometer allows the operator to return to a given setting, parallel to desired angle. By using the micrometer reading, the machine can return to previous position.

Ram Level: The ram level is accomplished by two hydraulic systems, one for each cylinder, which keeps them parallel. The ram self-levels at the bottom of each stroke even if hydraulic system is out of adjustment.

Hydraulic Cylinders: Direct acting hydraulic cylinders are one piece, double acting with self-aligning, hardened ball sockets.

Accuracy: Parallelism is maintained at ±0.002 inch in low speed.

Operating Controls:

1. Pull to start. Push off. Light is on when in the “ON” position.
2. Run/Jog switch. Run position for normal operation. Jog position for loading of tooling, maintenance and set-up. Up/Down buttons are used when in jog.
3. 3 Position Foot Petal
    a. Ram up
    b. Ram hold
    c. Foot petal down. Ram down allows or jogging of ram down and holding. Emergency stop and emergency up buttons are located on a small pedestal that comes from the foot petal.
4. Cycle time delay at bottom of stroke

When using top & bottom tools on a press brake, a forming system is created which requires analysis to determine the appropriate safeguarding for operator safety and protection.

It is the user’s responsibility to ensure that the point of operation is effective and all applicable safety requirements are met.

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American Made Hydraulic PRESS BRAKES

Stroke Control (Optional): Control of strokes in accomplished by rotation of hand wheels, which read in thousandths of an inch and set the closed height. When the machine is 2 or 3 speed, the knob for setting the speed change point is located on right side for simple adjustments.

Tonnage Control (Optional): Our machines are equipped with optional adjustable tonnage control to go from lower tonnage to rated tonnage of machine, as well as overload protection.

Backgauge: A slide and clamp, 3 axis backgauge 24" is standard.

1. Front operated manual backgauge, hand wheel with mechanical readout (0.01)
2. Front operated power backgauge with LED readout (0.001)

CNC backgauging and front gauging is optional.

Front Support Arms (Optional): 24" support arms are "slide" type. Optional disappearing stops help to hold the material from sliding backward.

Electrical System: The electrical systems meet NFPA 79 standards. All machines have disconnect switches, magnetic starters, 110/120v controls, 208-230/460v 3 phase, others optional.

Motors: Our American made motors are rated for continuous duty, open drip.

Lubrication: Grease zerks are standard. One shot lube or automatic lubrication is optional.

Safety Features: Betenbender Hydraulic Press Brakes and Shears are built to meet ANSI B11.3 standards. Safety features of the Betenbender Press Brake include:

- Emergency stop on pedestal
- Emergency up on pedestal
- Warning signs, safety markings and covers
- Electronics meet NFPA 79 standards
- 110/120v control

Specifications are subject to change without notice.

Compliance with OSHA requirements is the legal responsibility of the user and is subject to local inspectors' interpretation of existing standards.

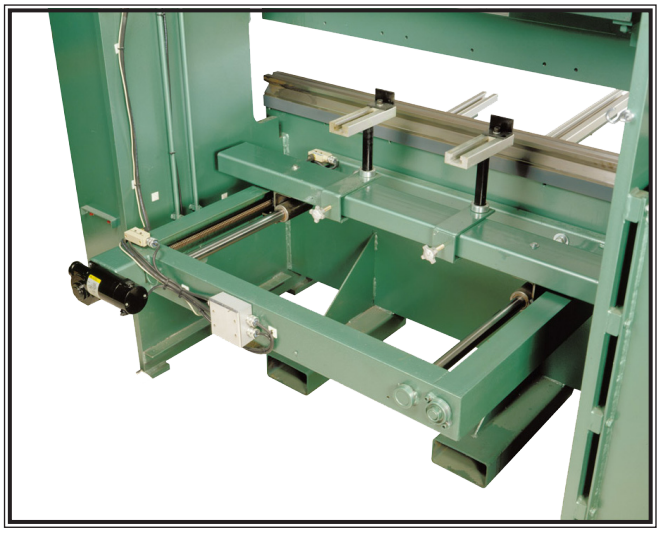
Betenbender Shears are built to meet ANSI B11.3 standards

Convert Feet to Millimeters Multiply By 304.8	
2'	609.6 mm
4'	1219.8 mm
5'	1524.0 mm
6'	1828.8 mm
8'	2438.4 mm
10'	3048.2 mm
12'	3657.6 mm
14'	4267.2 mm

Convert Inches to Millimeters Multiply By 25.4		
1/8"	0.125	3.18 mm
3/16"	0.188	4.77 mm
1/4"	0.250	6.35 mm
3/8"	0.375	9.53 mm
1/2"	0.500	12.7 mm
5/8"	0.625	15.88 mm
3/4"	0.750	19.05 mm
1"	1.000	25.4 mm

American Made Hydraulic
PRESS BRAKES

BACKGAUGES FOR PRESS BRAKES

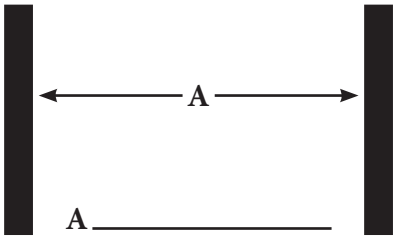


Backgauges available in
4' - 12' bar lengths.
Longer lengths...P.O.R.

#94MB24
Front Operated Manual Backgauge (24") with Mechanical Digital Readout

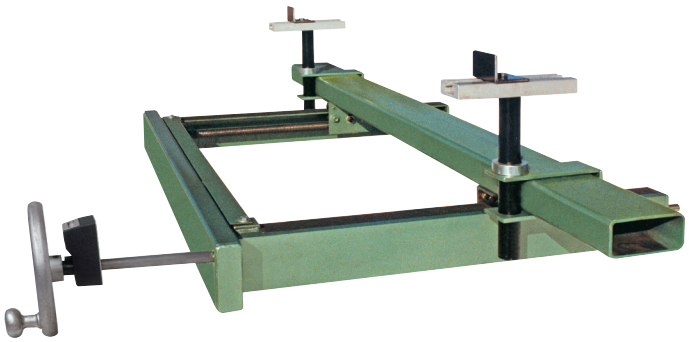
#94FOP24-GT
Front Operated Power Backgauge
Single Axis 5-Station "GO-TO" Positioner
Does not include swing arm pendant

#94FOP24-GT-AS
Front Operated Power Backgauge with
Auto Sequence Axis 5-Station "GO-TO" Positioner
Does not include swing arm pendant



(Specify distance between housing in inches when ordering)

Some Modifications may be Required to Adapt to Your Machine

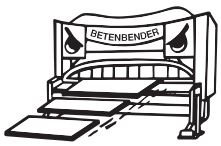


99 Station Auto Sequence

Serial Numbers & Oil Information

Model No.	Serial No.

BETENBENDER MANUFACTURING, INC.



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HMI

WE RECOMMEND THE FOLLOWING LUBRICANTS:

Hydraulic Oil.....Mobil DTE 25
Grease Points.....Lubriplate 930-AA

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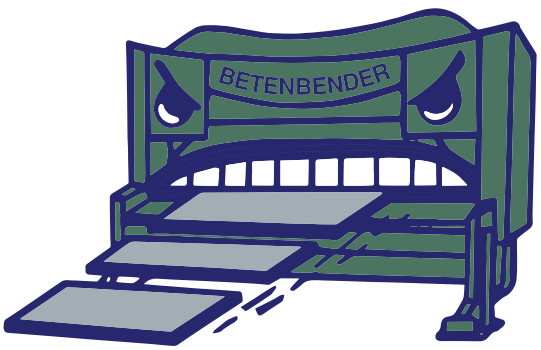

All machines are made in the heartland of the USA in Coggon, Iowa